

# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 1: Innovative Technical Solutions**

- **Moving a New Technology through R&D Phases to Implementation**
- **How Engineers Firms Can Help Communicate Research Needs and Help Move New / Innovative Technologies to Implementation**
- **How Academic Institutions can Provide Solutions to Help Meet Infrastructure Needs**
- **How State Plan Approval Programs Deal With New / Innovative Technologies**
- **How Municipal Infrastructure Managers Decide If/When to Implement New/Innovative Approaches**
- **EPA's Role in Fostering and Conducting Research in Support of the Sustainable Infrastructure Initiative**
- **Green Infrastructure/LID Approaches for Meeting Infrastructure Needs**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 1: Innovative Technical Solutions**

#### **Significant Challenges**

- **Processes for regulatory approvals and standards updates**
- **Funding of Research Work**
  - Small Companies / Big Costs
  - Ramping up from lab tests to “real world” testing
- **Documenting the performance of new technologies**
  - Decision-makers will avoid technologies about which there is uncertainty (people are risk-averse)



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 1: Innovative Technical Solutions**

#### **Significant Challenges**

**“If you need something and only have a limited amount of \$\$\$, would you spend it on a sure thing or a perceived unknown?”**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 1: Innovative Technical Solutions**

#### **Significant Challenges**

- **Liabilities (if new technology fails)**
  - Utility
  - Engineering Firm
  - Approval Agency
  - Regulatory Enforcement Staff Also Risk-Averse
- **Contractor Lack of Familiarity**
- **Uncertainty/Complexities re: Maintenance**
  - What is needed, what does it cost?
  - Who will do it?



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 1: Innovative Technical Solutions**

#### **Significant Challenges**

- **Mechanisms to facilitate flow of info about new technologies to academic institutions**
  - Teaching
  - Research
- **Collaboration between disciplines**
- **Institutional incongruities**
- **Resources for state approval programs**
- **Dissemination of research results; putting research findings into practice**





# **Sustainable Infrastructure Forum Track Summaries**

## **Track 1: Innovative Technical Solutions**

### **Approaches for Improvement**

- **Approval Agency Ombudsman or Liaison**
- **Direct Communication with Review Boards**
- **Agency Access To Technical Resources**
  - For radically different/new technologies
- **Updated Criteria/Protocols**
  - For radically different/new technologies



# **Sustainable Infrastructure Forum Track Summaries**

## **Track 1: Innovative Technical Solutions**

### **Approaches for Improvement**

- **Education/Communication on new technologies**
  - Forum, Clearinghouse, webcasts
  - Share the news, opportunities for collaboration
- **National or regional testing of new technologies (e.g., storm water)**
  - Economies of Scale
  - Standardization of Criteria/Approvals
  - Assistance to Communities Considering New Technologies



# **Sustainable Infrastructure Forum Track Summaries**

## **Track 1: Innovative Technical Solutions**

### **Approaches for Improvement**

- **Pilot / phase in new technology**
  - Back-up or contingency
- **Adaptive Management**
- **Teaching**
  - Integrate sustainability into undergraduate and graduate curricula
  - Integrate construction and O & M into designs
  - Include “soft” approaches (e.g., demand reduction → water conservation)
  - Continuing education





# **Sustainable Infrastructure Forum Track Summaries**

## **Track 1: Innovative Technical Solutions**

### **Follow-up Steps/Action Items**

- **Outreach to stakeholders (Utilities, Engineers & Contractors) in Practical Sustainable Infrastructure Implementation, New Technologies**
- **Sponsor local Pilots/Case Studies**
- **Recognition (Awards) for Successful Sustainable Infrastructure Projects**
  - Internal recognition as well



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 1: Innovative Technical Solutions**

#### **Follow-up Steps/Action Items**

- **Standards for stormwater controls → EPA?**
  - Economies of scale
  - Standardization
  - Links to permits / regulatory programs
- **Expand / take advantage of programs:**
  - STAR
  - SBIR
  - Cooperative research
  - Development agreements

# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 1: Innovative Technical Solutions**

#### **Follow-up Steps/Action Items**

- **Communication / education**
- **Pilots**
- **Bring diverse groups together to work on problems**
- **Quantification**
  - **Performance**
  - **Costs and benefits**
- **Optimize processes for reviewing new technologies, establishing standards**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 2: Extending Utility Operations Life**

- **Problems facing Utility Managers**
- **Tools to Address these Problems**
  - **Asset Management**
  - **Environmental Management Systems**
  - **Other Tools**
- **Providers of Assistance for Implementing these Tools**
  - **PEER Centers**
  - **Other Resources**



# **Sustainable Infrastructure Forum Track Summaries**

## **Track 3: Reducing Utilities Future Costs**

### **Problems, Needs and Challenges**

- **Need better means to utilize regional management solutions as a way to reduce capital and operational costs.**
- **Better communication with City Council and public is needed to raise awareness of the value of water.**
- **Need to manage using watershed approach.**





# **Sustainable Infrastructure Forum Track Summaries**

## **Track 3: Reducing Utilities Future Costs**

### **Problems, Needs and Challenges**

- **Need to consider variability in commodity costs in planning future capital costs.**
- **Focus on appropriate technology for community size.**
- **Compliance timeframes should be flexible/extendable and should allow for longer timeframes.**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 3: Reducing Utilities Future Costs**

#### **Problems, Needs and Challenges**

- **Based on declining populations in small communities, an analysis is needed to determine where decommissioning is most efficient. Technical assistance is needed to accomplish this analysis.**
- **There's a challenge of competing goals (water quality standards, public health) for the utilities.**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 3: Reducing Utilities Future Costs**

#### **Pathways to Progress**

- **Challenge: Need ways to utilize management solutions to reduce capital/operational costs**
  - **Maximize economies of scale**
  - **Regionalize community education**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 3: Reducing Utilities Future Costs**

#### **Pathways to Progress**

- **Challenge: Raise City Council and public awareness of value of water**
  - **Federal, state, local agencies run ad campaigns to sell the same message**
  - **Use a business approach to educate (Asset Management)**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 3: Reducing Utilities Future Costs**

#### **Pathways to Progress**

- **Challenge: Need to manage using watershed approach**
  - **Generate and share water quality monitoring data (Chesapeake, Milwaukee)**
  - **Legislate unregulated agricultural community**





# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 3: Reducing Utilities Future Costs**

#### **Pathways to Progress**

- **Challenge: Need to consider variability in commodity costs in planning future capital costs**
  - **Innovation/new technology to replace what's not available**
  - **Better planning/prioritize spending**



# **Sustainable Infrastructure Forum Track Summaries**

## **Track 3: Reducing Utilities Future Costs**

### **Turning ideas into action**

- **Challenge: Need ways to utilize regional management solutions to reduce capital/operational costs**
  - **Resurrect & review 208 area-wide management plans**
  - **Encourage SRF to use Drinking Water's approach to emphasize regionalization**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 3: Reducing Utilities Future Costs**

#### **Turning ideas into action**

- **Challenge: Raise City Council and public awareness of value of water**
  - **Provide council members with scripts to educate public**
  - **Develop documentary of a small town going through education process**



# **Sustainable Infrastructure Forum Track Summaries**

## **Track 3: Reducing Utilities Future Costs**

### **Turning ideas into action**

- **Challenge: Need to manage using watershed approach**
  - Hire lobbyists to develop legislation for unregulated agricultural communities
  - Inform / educate unregulated agricultural communities regarding impending legislation



# **Sustainable Infrastructure Forum Track Summaries**

## **Track 3: Reducing Utilities Future Costs**

### **Turning ideas into action**

- **Challenge: Need to consider variability in commodity costs in planning future capital costs**
  - **Encourage pilot studies for non-material intensive infrastructure solutions**
  - **Reward innovation fairly with respect to benefit provided**





# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 4: Solutions for the Small Utility**

- **Paying for Sustainable Infrastructure – Obstacles and Options**
- **Capacity Development Program – A Framework for Sustainability**
- **Utility Partnerships – Gaining Operational and Managerial Efficiencies**
- **Roles of Key Audience Groups in Implementing Sustainability Solutions**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 4: Solutions for the Small Utility**

#### **Significant Challenges**

- **Industry structure/ownership characteristics**
- **Lack of technical knowledge about State and federal requirements (and how to meet them)**
  - **Operator salary / training**
- **Recognition of and willingness to gain access to capital**
  - **Need to fit financing instruments to different cases**
- **Lack of economies of scale, leading to a high per-customer cost of operations**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 4: Solutions for the Small Utility**

#### **Significant Challenges**

- **Lack of financial / managerial capacity**
  - Financial incentives / requirements
  - Board member training
- **Lack of affordable technologies to comply with existing and new technologies**
- **Public awareness of small system needs**



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 4: Solutions for the Small Utility**

#### **Approaches for Improvement**

- **Truly understand small community differences**
  - Targeted use of SRFs
  - Overcoming the barriers to consolidation
  - System Management Intervention Program
  - Implementation of “real” asset management
  - Promotion and acceptance of alternative compliance technologies
  - Raising public awareness



# **Sustainable Infrastructure Forum**

## **Track Summaries**

### **Track 4: Solutions for the Small Utility**

#### **Follow-up Steps/Action Items**

- **Further promotion of the Operator Certification expense reimbursement grant program (DW only)**
- **“Personalized” information for customers**
- **Continuity mechanisms / diagnoses**
  - Procedural
  - Operational
  - Cost of replacing key staff / identifying costs of services provided by volunteers
- **Investigate feasibility of Intervention Program**